

TRAIL & Landscape

A PUBLICATION CONCERNED WITH
NATURAL HISTORY AND CONSERVATION



TRAIL & LANDSCAPE

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THE OTTAWA FIELD-NATURALISTS' CLUB - Founded 1879 -

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Objectives of the Club: To promote the appreciation, preservation and conservation of Canada's natural heritage; to encourage investigation and publish the results of research in all fields of natural history and to diffuse information on these fields as widely as possible; to support and co-operate with organizations engaged in preserving, maintaining or restoring environments of high quality for living things.

Club Publications: *THE CANADIAN FIELD-NATURALIST*, devoted to publishing research in natural history. *TRAIL & LANDSCAPE*, a non-technical publication of general interest to local naturalists.

Field Trips, Lectures and other natural history activities are arranged for local members.
See inside back cover.

Membership Fees:

INDIVIDUAL MEMBERSHIP:	(per year)	\$7.00
FAMILY MEMBERSHIP:	(per year)	\$9.00
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Ottawa Field-Naturalists' Club,
Box 3264, Postal Station "C",
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SUBMIT YOUR NOMINATIONS FOR THE 1974 COUNCIL

Do you know a capable Club member who wants to take an active part in Club affairs - someone with special talent in one of the various aspects of working to preserve natural areas, or in the field of finance or any other administrative duty?

Ask this member whether he or she would like to become a member of the 1974 Council. Then send the member's name, and the names of the nominator and seconder to

The Nominating Committee,
The Ottawa Field-Naturalists' Club,
Box 3264, Postal Station C,
Ottawa K1Y 4J5

BEFORE JANUARY 10, 1974.

The slate of candidates for officers and additional members of the 1974 Council will be voted on at the Annual Business Meeting, January 21; no additional nominations will be accepted from the floor.

TRAIL & Landscape

Vol 8 No 1

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THE OTTAWA FIELD-NATURALISTS' CLUB
Box 3264 Postal Station C,
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Editorial	- - - - -	2
Grouse Tracks	- - - - -	4
J. M. Reddoch		
Outdoor Happenings III	- - - - -	5
W. Lynch		
Squawroot (<u>Conopholis americana</u>) in the Ottawa-Hull District	- - - - -	6
D. F. Brunton		
Remember Summer?	- - - - -	8
M. Ma		
Your Council in Action: Highlights	- -	9
A. H. Reddoch		
The Black Swallowtail - From Larva to Pupa	-	10
J. M. Reddoch		
Comets	- - - - -	15
G. R. Hanes		
Independence	- - - - -	16
The Fern Allies of the Ottawa-Hull District Part II. The Clubmosses	- - - -	18
D. F. Brunton		
Help Us Compile an Inventory of our Natural Areas	- - - - -	24
A. H. Reddoch		
Coming Events	- - - -	inside back cover

Natural Areas Are Community Resources

Recently our club has been active in recommending to planners natural areas which our members feel should be preserved. (Every member can and should be involved; read p24.) Of course we include our favourite haunts - a few of which only a naturalist could love! - but in defending our recommendations we must take a broader view. Dedicated active naturalists are a pretty small minority and the needs of a larger public must be appealed to when we assess the values of a natural area with preservation in mind. Some of these considerations are discussed below.

Individual Need and Availability Contact with nature is important to some people; as with music, some feel no need for it but many enjoy it. For a few, it is as necessary for psychic well-being as food for the body. Although relatively few people study nature, many find a natural setting desirable for other activities, or for relaxation. For these, frequent contact is important, which means that natural areas must be readily accessible to urban residents. For this purpose small natural areas in and near cities are better than the finest wilderness in remote parks; we need both small areas within residential sections and larger blocks beyond the suburbs.

Option Value Individuals who at present are uncertain as to whether, or how often, they would use a natural area nevertheless place a high value on preserving it so they can exercise the option of visiting it in future if they wish. Option value is significant if the area has few close substitutes and cannot be restored.

Social Preservation Value is the value to society as a whole, including those who have no intention of using a natural area, of knowing that it is preserved in an unchanged state. This social preference for preservation, the satisfactions gained from assurance that

natural phenomena continue to exist, may be completely independent of the participation of actual users. It may reflect the conservation outlook that is at the centre of today's environmental ethic. Parents who have no interest in nature themselves generally appreciate the availability of natural areas for their children's enjoyment and education. This is an aspect of a general concern for preserving the heritage of future generations.

Education School curricula are likely to increase the emphasis on biology and ecology studies as these become of increasingly vital concern to our species' survival. Natural areas provide outdoor classrooms; most valuable are those readily accessible from school buildings.

Research Natural areas close to home may be valuable sites for natural history research, particularly that which involves frequent or continuous observation of natural processes.

Habitat Every natural area provides homes for many species of wildlife and often a haven for interesting (occasionally rare) native plants. Ideally, examples of many different landscape types should be preserved, as each type will have a different community of plants and animals. Habitats of endangered species ought to be preserved and protected.

Functional Values A natural area can provide a desirable change of scene within a built-up neighbourhood; furnish a visual screen for unattractive utilities; help to isolate noise-producing activities. Wetlands are useful for stabilizing water flows, help to reduce stream or storm sewer peak flows during storms.

Perhaps readers are thinking of other ways in which natural areas are important. In addition to contributing information for our Inventory, your ideas about the values of natural areas to your community would be welcomed.



GROUSE TRACKS

Joyce Reddoch

OUTDOOR HAPPENINGS

III.

FROG'S LEGS ANYONE?

It was a cool clear morning in March 1973. I'd been walking along the railway tracks south of Richmond when I spotted a small brown animal on the west bank of the Jock River. It was crouched beside a segment of the river where the ice had failed to form because of the swift current. With my binoculars I soon identified it as a mink.

Three times the animal disappeared beneath the surface of the water and each time it emerged with a frog clenched securely in its jaws. On the last two occasions it was submerged for 45 and 53 seconds respectively. After each dive it would deposit its prey on the ice and then proceed to clean itself by sliding its face systematically along the snow two or three times. This completed, it returned to its catch and began to eat, ingesting first the limbs followed by the head and trunk. This particular order was used by the mink in eating all three times.

After twenty minutes or so with its appetite apparently satisfied, it disappeared into a nearby cedar thicket.

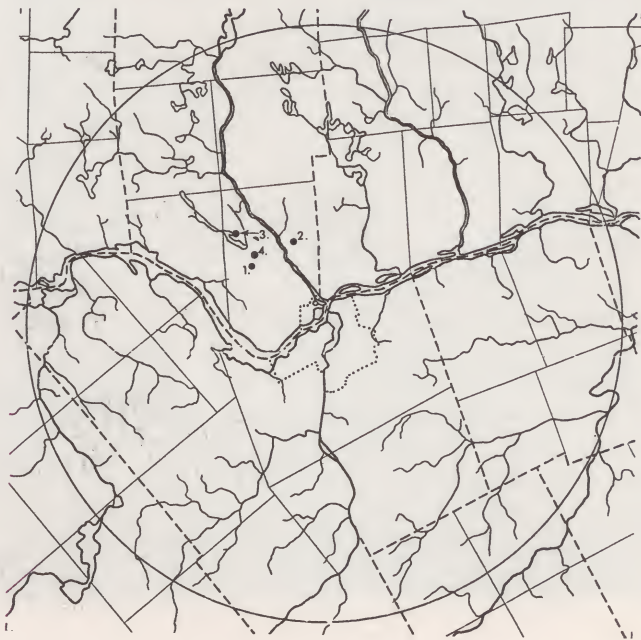
Wayne Lynch

SQUAWROOT (CONOPHOLIS AMERICANA) IN THE OTTAWA-HULL DISTRICT

Dan Brunton

Most of us know the beautiful, ghostly Indian Pipe (Monotropa uniflora). It's a member of that strange group of flowering plants - in several families - which do not contain chlorophyll. Chlorophyll, of course, is the pigment which gives most flowering plants their green colour, and is essential to the process of food formation. Those plants without it - such as the Indian Pipe - usually gain their nutrition by parasitizing green plants and are often white or yellowish-brown, and waxen in appearance.

The Squawroot (Conopholis americana (L.) Wallr.) is one such non-chlorophytic parasite. It grows in dense clumps, looking like so many pine cones which have been pushed through the leaf litter. Below ground, however, the rootlets of these "pine cones" are firmly



Distribution of Squaw-root (Conopholis americana (L.) Wallr.) in the Ottawa-Hull District

bound into the root of a Red Oak, its host. In response to the invasion of the Squawroot, the Red Oak develops a swelling which surrounds the Squawroot, but ironically, also concentrates nutrients at the point of invasion, thus fully supplying the needs of the parasite!

Squawroot is very rare here. It has never been found on the Ontario side of the District, and is known only from four stations on the Quebec side. (See map.) Two of these are old collections in the herbarium of the Dept. of Agriculture, Ottawa (Stations 1 and 2), and their status is unknown. Station 1 is at Kingsmere, Gatineau Park; station 2 is at Cantley, Quebec. Station 3 was discovered by Sheila Thomson in 1971, east of Meach Lake in the Gatineau Park. The 4th station was discovered on August 24, 1973, 100 feet north of the Penguin Picnic Field, Gatineau Park, by Paul Keddy of Carleton Place, Mike Runtz of Arnprior, and this writer.

Marie-Victorin (1947) says that Squawroot is rare in Quebec, being found only in the west of that province. Raymond (1950) cites it only from Rougemont, in the Eastern Townships.

Why is it so rare? Red Oak, its preferred host, is certainly common enough in the Ottawa-Hull District (as it is in all of western Quebec). A likely explanation is that we are simply missing it, passing it off as a bunch of pine cones, or just not seeing it at all.

The next time you find yourself in a Red Oak forest, keep an eye out for clumps of "pine cones"; you may find a new station of this strange (and rare?!) plant.

Literature Cited

- Marie-Victorin, Frère. 1947. Flore laurentienne. Les Frères des Ecoles Chrétien-
nes, Montreal.
- Raymond, Marcel. 1950. Esquisse Phytogéographique du Québec. Memoires du Jardin Botanique No. 5, Montreal.



The OFNC in Gatineau Park, July 1973

REMEMBER SUMMER? That enervating heat - burning sun - maddening mosquitoes - leaves and flowers cluttering up the landscape - aren't you glad it's gone? (...well, aren't you?) Photos MIKE MA

A club member recovers from that arduous hike



September 17

A report was discussed on the causeway which was built at Ottawa Beach in spite of contrary advice by the Club and which resulted in some loss of the waterfowl area. In spite of these past poor communications there is a good prospect of saving the remainder of the area.

It was suggested that the Club should concern itself with the planning of future nature trails, etc., in the Mer Bleue.

Informal arrangements have been made to collaborate with Gloucester Pollution Probe on the conservation of natural areas.

It was agreed that the Club accept an invitation to become a Constitution Society in the Canadian Section of the International Council for Bird Preservation.

October 15

The Ottawa Carleton draft Regional Plan was discussed. The Research and Briefs Committee is preparing a submission on it, to be completed after the November General Meeting.

Several members have received requests from the South Nation Conservation Authority for information on the natural history of the Alfred Bog and would welcome any input they can get.

October 29

A special session was held to study in detail proposed By Law changes made necessary in part by the adoption of the present Constitution.

THE BLACK SWALLOWTAIL - FROM LARVA TO PUPA

Joyce Reddoch

The Black Swallowtail Butterfly is sometimes called the Parsnip Swallowtail. No wonder. People who grow carrots, parsley and parsnip become familiar with this velvety black butterfly, with markings of yellow and blue, fluttering low over their gardens. It is depositing creamy-white eggs on the vegetable foliage which will be the food supply for its larvae.

On hatching, the young larvae are dark brown except for a wide, white band across the middle. They eat voraciously, shed their skins several times, and grow quickly into handsome green larvae with black bands containing yellow spots on each segment. Further eating brings the larvae to the stage where they are ready to change into pupae. They will rest in this form while turning into adult butterflies. The following set of pictures shows the transformation from larva to pupa which took place during the latter part of last August.



"handsome green larva with black bands containing yellow spots on each segment" on one of its favourite foods, parsley

photos by the author



During the day the larva had woven a silken cord on which it suspended itself, and had removed all of its legs from the supporting branch.



Suddenly the head was thrown back and the outer skin split along the upper back and began to slide down the body.



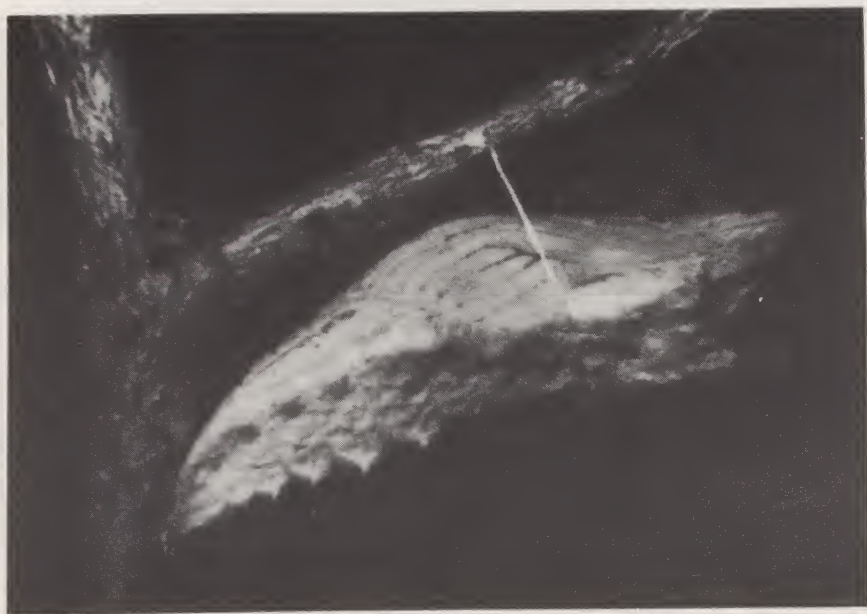
In 35 seconds the pale green top of the pupa had emerged.



The skin continued to slide downward and was almost ready to fall off two minutes later.



The pupa continued to wriggle and twist for several hours.



During the next two days the outer surface hardened to a light brown shell. Within the shell, the conversion to an adult butterfly will be completed; in a month or so the new butterfly will be ready to emerge.



A month later - empty!

That round hole in the side of the pupa case was not made by an emerging butterfly - butterflies do not leave by such neat doorways. No, the hole must have been the exit port of a parasite.

How did all this happen? Well, when the black swallowtail larvae were feeding in the garden, we saw some of them hunted down by a large, brown, smoky-winged wasp. We caught it and gave it to Don Lafontaine for identification. He told us it was Trogus pennator, a species which lays its eggs exclusively in swallowtail larvae which eat umbelliferous plants. It is 80 - 90% effective in gardens, where the concentrations of larvae are much higher than in the wild.

And so this parasitic wasp had caught up with our larva and had laid its egg in it. The resulting wasp larva grew inside the body of its host and then pupated at about the same time as the black swallowtail larva. A month later the new adult wasp emerged through the opening it had cut, ready to start the cycle over again. And if you think life for black swallowtails would be different without Trogus pennator, take another look at the larva eating parsley (p. 10). It is being closely followed by a tiny wasp, Pteromalus sp., one of several other parasites ready to follow the same pattern.

COMETS

Gary Hanes

The potentially spectacular Comet Kohoutek should just be appearing in the western sky after sunset when this issue of T & L comes out, and if it lives up to advance notices, the next two or three weeks may provide the best comet viewing of this century.

Comets are believed by astronomers to be loose aggregates of frozen light gases such as methane, ammonia, cyanogen, oxides of carbon and water plus various amounts of dust and rock - this is the "dirty ice" hypothesis. Generally they travel in highly elliptical orbits, spending most of their time in the dark outer reaches of the Solar System. Maybe only once in 10,000 years does a brief moment of glory come as they sweep rapidly in around the Sun.

As a comet approaches the warmth of the Sun, the outer layers of the "ice" evaporate. The released gases push outward from the comet, carrying the finer components of the "dirt" with them. However, the solar "wind" - atoms streaming outward from the Sun - rapidly deflects the released cometary material into a long tail stretching outward in the direction away from the Sun. Sunlight scattered from the dust, and fluorescence of the gases in the ultraviolet light from the Sun, make the comet and its tail visible. The closer a comet approaches the Sun, the more rapidly material is evaporated from the surface, and the brighter is the sunlight, so that the brilliance a comet attains depends strongly on how closely it approaches the Sun. This is the reason Comet Kohoutek is expected to be so spectacular, for it comes within a mere 13 million miles of the Sun on December 28.

Bulletin: Latest results indicate that Comet Kohoutek will be less spectacular than was earlier expected. G.H.

INDEPENDENCE

Consider the Otter. Three feet long, coloured grayish brown all over, a round, tapering tail, and holding its head all out of the water when swimming. It is the only meat-eating mammal in Algonquin that eats only fresh meat the year round. All the others are at least part-time scavengers. It seems as much at ease on a lake covered by ice as in summer waters, and to see one pop up through a hole in the ice and enjoy a meal of fish or frog that it has brought up from below makes you think that next to a winter in Florida it would be nice to be an Otter.

It is a great traveller at all seasons, usually along watercourses, but often taking short-cuts across country from one watershed to another. Because of its short legs and long, narrow body, its trail in snow looks like the mark of a small log being dragged. On a slope it stretches its legs out parallel with its body and coasts, and may slide fifty yards or more in snow.

Year after year the Otter maintains a good population in Algonquin Park, minding its own business and setting an example of complete independence. Truly an admirable animal.

from the RAVEN, Algonquin Park newsletter, July 1973.
Ontario Ministry of Natural Resources.

* * * * *

THANK YOU

The staff of T & L thank the following for their help in the past year: Dr. Louis Lemieux, Director of the National Museum of Natural Sciences, and his secretary, Mrs. Dorothea Freeborn, for the use of their offices; and John Kemp, who assisted with reproduction of photographs.



Otter slide

Gatineau Park

Anne Hanes



The Fern Allies of the Ottawa-Hull District

Part II THE CLUBMOSESSES

by D. F. Brunton

The clubmosses (of the genus Lycopodium) are amongst the most primitive species of plants in the world. Their tree-sized ancestors dominated giant Paleolithic forest swamps over 300 million years ago, and the vast deposits of oily spores laid down by these giants have become the coal which we mine today.

There are over one hundred species of Lycopodium in the world, eight of which occur in the district. Our species are small, evergreen plants looking something like overgrown mosses. They are unimpressive at first glance, but the variety of habitats which they occupy, in addition to their interesting distributional patterns - to say nothing of a subtle but real beauty - make them fascinating to observe and study.

Their life-cycle is amazing. They reproduce by means of spores which are contained in yellow spore-cases called sporangia, which are either affixed to the bases of leaves or, in more advanced species, are on a special stalk called a strobilus. These microscopic spores are highly explosive - hence the use of "Lycopodium powder" as an early form of photographic flash.

In nature, of course, the spores have more important tasks! Whether transported by air or water, the released spores will develop into an underground tuber - assuming they are so lucky as to land on a suitable site. These nondescript tubers (called gametophytes) survive by taking their nourishment from subterranean fungi - and will continue to mature slowly for over ten years! When conditions are right, female (archegonia) and male (antheridia) sexual organs develop, and fertilization can occur. Only after all this will you see the plant surface above ground! The plant you see can be over twenty years old. The stem which finally emerges, the sporophyte, has the ability to produce spores - and to start the whole business all over again.

KEY TO THE SPECIES OF LYCOPODIUM IN THE OTTAWA-HULL DISTRICT

(Numerals after the species names refer to the descriptions following the Key. Words underlined point to particularly important features for identification.)

- A Sporangia along zones in leafy portion of stems
- b stems short, pale green; sporangia in swollen area at top of stem; cord-like appearance; in wet, acidic areas:
BOG CLUBMOSS (L. inundatum) 1
 - b stems long, dark green; sporangia in unswollen top of stem; ragged appearance.
 - c leaves dull, broadest at base and tapering to point; sporangia bright yellow; stems in tight clusters:
MOUNTAIN CLUBMOSS (L. selago) 2
 - c leaves shiny, broadest at middle and tapering to both ends; sporangia dull yellow; stems in loose clusters:
SHINING CLUBMOSS (L. lucidulum) 3
- A Sporangia in leafless portion of stem (strobilus)
- d strobilus connected to leafy portion of stem
 - e stems freely branched; sprawling branches give appearance of a tiny pine tree:
GROUND PINE (L. obscurum) 4
 - e stems once-branched; separate and erect branches:
RUNNING CLUBMOSS (L. annotinum) 5
 - d strobilus separate from leafy portion of stem
 - f leaves tiny; cord-like stems with numerous branches and several strobili; appearance of tiny cedar tree
 - g rhizome deep in ground; each stem appears to grow separately; branches strongly upright:
THREE SPIKED GROUND CEDAR (L. tristachyum) 6
 - g rhizome on or near surface of ground; stems clearly linked to common horizontal stem:
GROUND CEDAR (L. complanatum) 7
 - f leaves large; broad stems freely branched; few strobili:
STAGHORN CLUBMOSS (L. clavatum) 8

LYCOPODIUM SPECIES IN THE OTTAWA-HULL DISTRICT

1 BOG CLUBMOSS (L. inundatum L.)

This peculiar little plant grows in huge, dense mats, almost always in very open, wet and acid areas such as bog meadows and abandoned sand pits. It occurs all across the Canadian Shield, but in eastern North America it occurs appreciably south of the shield only in high-elevation bogs and acid depressions along the Appalachian Mountains.

There are relatively few collections and records for this species from the District, although it will undoubtedly be found all across the Quebec side of the District, where suitable habitats are not rare. A good place to observe it is in the sandy depressions at the end of the Ridge Road in Mer Bleue where it grows in tremendous abundance.

2 MOUNTAIN CLUBMOSS (L. selago L.)

As its name would suggest, this is normally a mountain species towards the south of its range, and it is found on open rock and cliffs in its regular Arctic-Subarctic range. South of a line from Lake Superior to the Clay Belt of Quebec ^{1,2}, L. selago is found in relict locations where small populations have managed to survive since the last ice-age; so too in the District³.

This far south, however, it does not grow on open rock; it survives in cold, very acid bogs, nestled deeply into the sphagnum moss. This very harsh environment restricts competition from species better adapted to this southern area.

3 SHINING CLUBMOSS (L. lucidulum Michx.)

Look for chains of this handsome, common clubmoss in the cool, shaded coniferous forests of the shield area of the District. It seems particularly to prefer hemlock, spruce and cedar forests.

This species has one of the smallest ranges of our clubmosses; it spans eastern Canada as far west as northwestern Ontario, and is found all down the Appalachians. It can easily be found throughout Gatineau Park.

4 GROUND PINE, PRINCE'S PINE (L. obscurum L.)

As the name suggests, it looks just like a little pine tree, and it has long been used in ornamental displays. It is very common throughout the District wherever rocky, acidic woodland is found.

It occurs all across the Canadian Shield, and even gets into eastern Siberia. Good places to look for it in the District would be Gatineau Park or the Carp Hills.

5 RUNNING CLUBMOSS (L. annotinum L.)

This is another well-named species. It trails or runs over the ground on a long creeper, with many erect stems sprouting from it. It prefers moist, shaded forests, often in coniferous woods growing in the acidic soil of the leaf litter.

Another trans-Canada species, it would appear to be rare in the District if one were to go by specimens alone. (See map.) However, despite the spotty collecting, it is undoubtedly common all across the shield country of the District. Look for it in such places as Gatineau Park.

6 THREE SPIKED CLUBMOSS, GROUND CEDAR (L. tristachyum Pursh)

This species likes very open, sandy areas. Though each stem is connected to a common horizontal stem, it is so deep in the soil that each erect stem appears to be separate and can be pulled out of the ground individually. The branches of these stems are upright - looking like so many umbrellas which have been popped open by the wind.

It occurs throughout eastern North America and is found in the District along sandy river shores and upland areas of the shield.

7 GROUND CEDAR (L. complanatum L.)

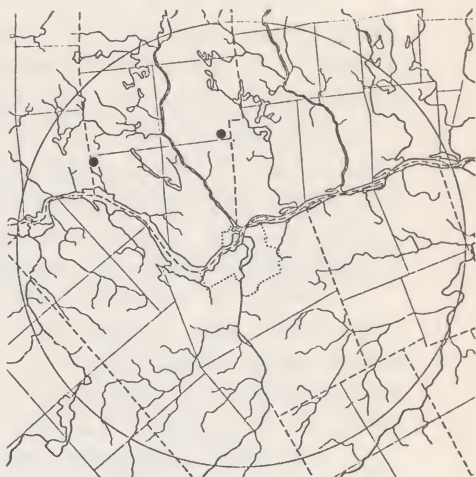
This species grows in open, rocky sites, usually more shaded than the preceding species, and in almost every sandy site in the District. It is one of our commonest clubmosses.

8 STAGHORN CLUBMOSS (L. clavatum L.)

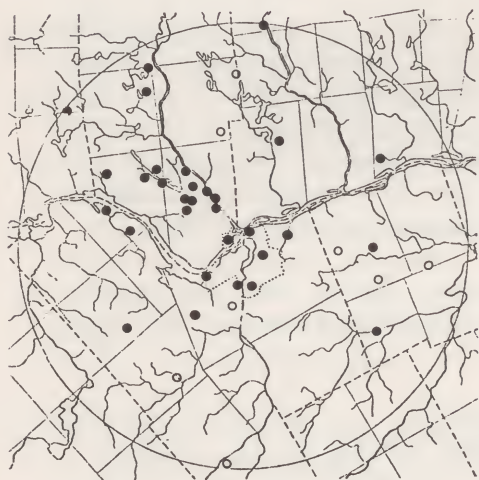
In rocky, sandy woods, this clubmoss has the widest range of all our local clubmosses. It occurs across the USA, Canada and Eurasia. It is probably our commonest species of clubmoss.



1 BOG



2 MOUNTAIN



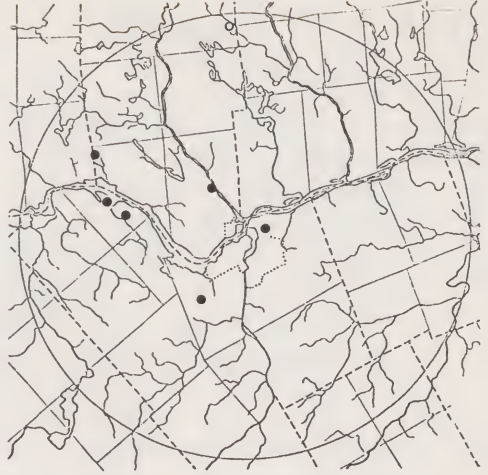
3 SHINING



4 GROUND PINE



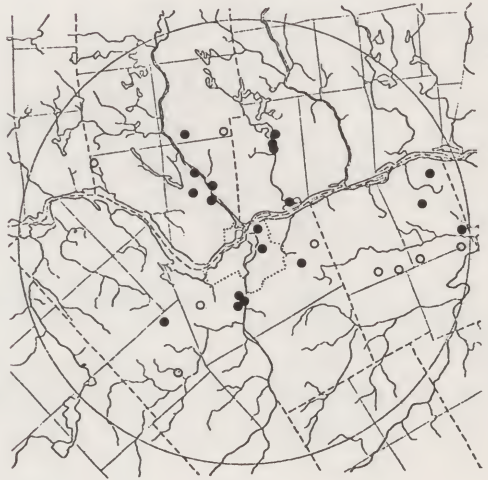
5 RUNNING



6 THREE-SPIKED



7 GROUND CEDAR



8 STAGHORN

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- 1 Marie-Victorin, Frere. 1947. Flore Laurentienne. Les Frères des Ecoles Chrétiennes, Montreal.
- 2 Soper, J.H. and P.F. Maycock. 1963. A Community of Arctic-Alpine Plants on the East Shore of Lake Superior, Can. Jour. Botany 41(183-198).
- 3 Brunton, D.F. 1973. The Mountain Club-moss, *Lycopodium selago* L., in the Ottawa-Hull District. Trail & Landscape 7: 3 (66-68).

HELP

US COMPILE AN INVENTORY OF OUR NATURAL AREAS

So far this year our Club has been asked for information on natural areas by the Ottawa-Carleton Regional Municipality, the Rideau Valley Conservation Authority, the Mississippi Valley Conservation Authority, and the Federation of Ontario Naturalists. We do our best to provide answers, but obviously we don't know every significant natural area between Cornwall, Kaladar and Petawawa, and we may overlook some closer to home.

You can help us to do a more thorough job in trying to conserve natural areas by telling us of those areas which you think are worth saving. If you know such areas and would hate to see a high rise or highway on them, tell us now. Planning is going on now and we may be able to influence it. We need to know the following information:

- 1) Location Mark it on the map and send it to us, or tell us the names of the nearest roads, e.g. on S. side of Davidson Rd. $\frac{1}{4}$ mile W. of Hawthorne Rd., or give us directions, e.g. turn east from Highway 31 on first concession road south of Blossom Park and go $1\frac{1}{2}$ mi., or give us map coordinates, e.g. 31G/5 535223.
- 2) Size Is it a whole concession, a whole woodlot, a corner of a field, a pond, or $\frac{1}{4}$ mile of stream bank?
- 3) What's good about it? spring flowers, fossils, a stand of old pines, pleasant trails, lots of ducks, albino Cypripedium acaule, etc.
- 4) Your name and phone no. in case we don't understand something.

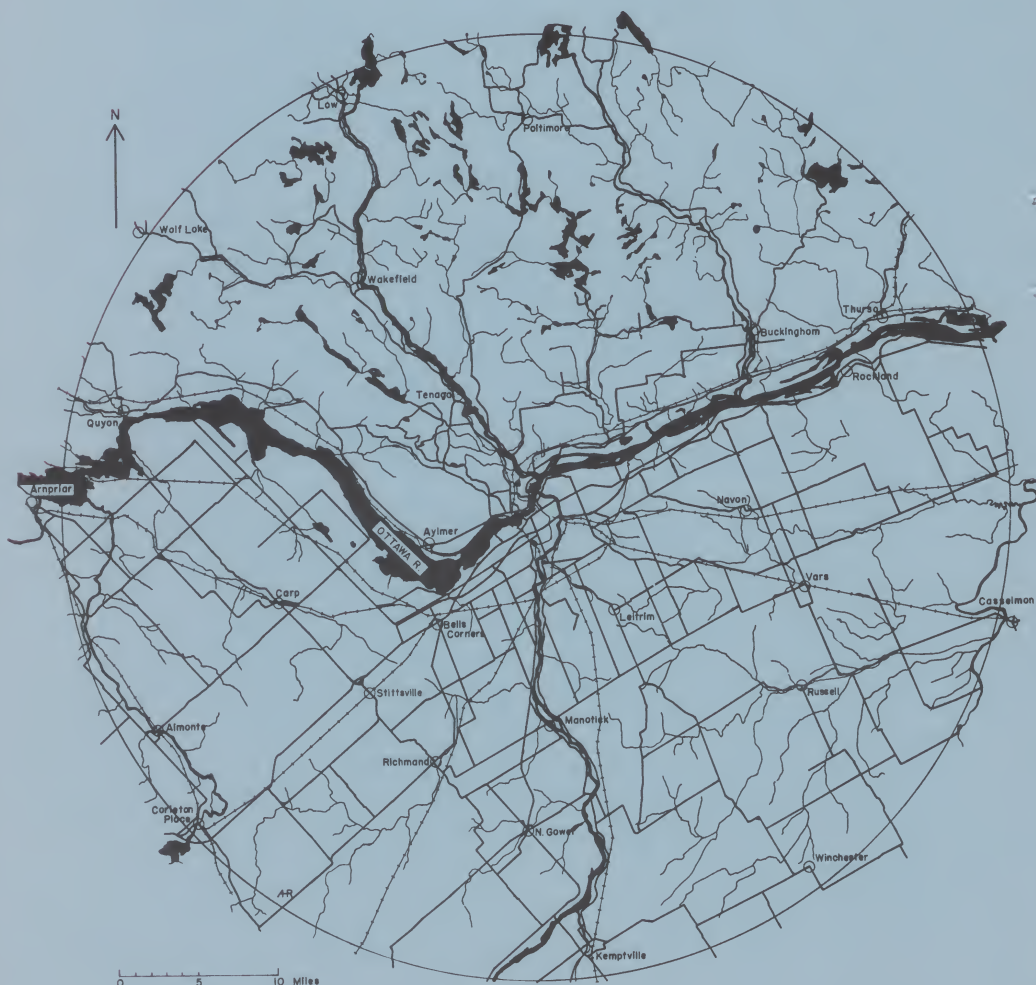
We are particularly interested in what the Club has traditionally called the Ottawa area, i.e. within 30 mi. of the Peace Tower. This in effect includes all of Ottawa-Carleton, and Quebec from Quyon to Low to Thurso. However, we will keep a file on any area in eastern Ontario or western Quebec and will be glad to accept any information you have. Since Gatineau Park and the Mer Bleue are well-known, you need not list them unless you know of some special feature in them which should be saved. Also, if you took part in our very limited trial run earlier this year on Gloucester Township or the Carp Hills, you need not repeat that information.

A final word. You don't need to be an expert naturalist to help. If you like an area, tell us and we'll find the experts if we need them. Even if you know that some leader or member of the Council knows about an area, you tell us about it. If we find out that ten people use an area, then we know that it is more appreciated than if only one person uses it.

If you have any questions about this survey, phone Allan Reddoch at 749-5363.

Send your list to:

Natural Areas Inventory,
The Ottawa Field Naturalists' Club,
Box 3264, Postal Station C,
Ottawa, Ont. K1Y 4J5



Ottawa-Hull area

We hope to see you at the

n i n e t y - f i f t h

**ANNUAL
BUSINESS
MEETING**



o f t h e

O T T A W A F I E L D - N A T U R A L I S T S ' C L U B

t o b e h e l d i n

The Auditorium, NATIONAL RESEARCH COUNCIL, Sussex Drive,

Monday, 21 January 1974 at 8 p.m.

Following the business meeting, a film titled

Puffins, Predators & Pirates

will be introduced and shown by Dr. David Nettleship
of the Canadian Wildlife Service

We hope also to show a short film on the
Meach Brook area of Gatineau Park

Refreshments, too

O F N C EVENTS IN JANUARY AND FEBRUARY
arranged by the Excursions and Lectures Committee
Roger A. Foxall, Chairman (745-7791)

Members arriving by bus at meeting place for excursions can usually find rides with other members going by car. For further information call excursion leader.

Friday
11 January

THE BIRDS OF RAMSAYVILLE MARSH - A PHOTO-GRAPHIC STUDY

Speaker: Karl Himmer
Meet: St. Andrew's Church
Kent and Wellington Streets
Time: 8:00 p.m.

Monday
21 January

ANNUAL BUSINESS MEETING

Meet: Auditorium, National Research
Council, 100 Sussex Drive
Time: 8:00 p.m.
Program: see opposite page

Friday
1 February

BIRD ROUND-UP: BIRDERS ON VACATION

Leader: Roger Foxall (745-7791)
Meet: St. Andrew's Church, as above
Time: 8:00 p.m.

An evening of colour slides and short, informal talks by some of the club's birders. If you would like to contribute, please give the leader a call.

Sunday
10 February

FIELD TRIP: WINTER BIRDS

Leader: George McGee (733-1739)
Meet: Westgate Shopping Centre
Carling Avenue at Merivale
Time: 8:30 a.m.

Half day trip - bring a snack.

Friday
15 February

FILM EVENING

Meet: St. Andrew's Church, as above
Time: 8:00 p.m.

A selection of films on various aspects of natural history will be shown.

Saturday
23 February

FIELD TRIP ON CROSS COUNTRY SKIS

Leaders: Harry and Sheila Thomson
(234-0845)
Meet: Supreme Court Building
Wellington Street
Time: 8:30 a.m.

All day trip - bring lunch and tea or soup.

TRAIL & LANDSCAPE

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THE OTTAWA FIELD-NATURALISTS' CLUB

Second Class Mail - Registration Number 2777

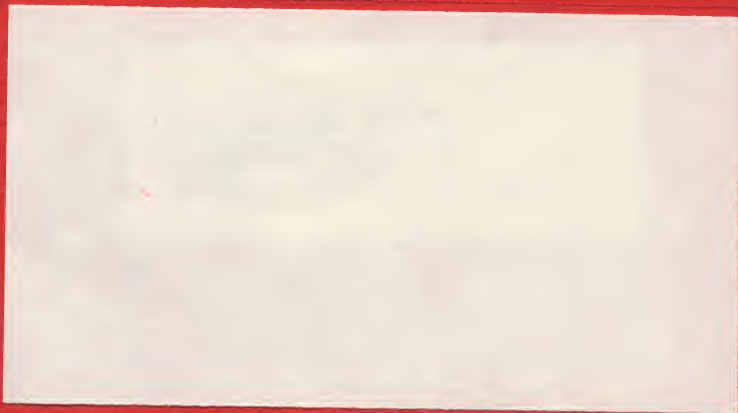
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